

Abstract Submitted  
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**Droplet impact onto a solid sphere: effect of wettability and impact velocity**<sup>1</sup> ALIDAD AMIRFAZLI, S.A. BANITABAEI, York University — Collision of a droplet onto a still spherical particle was experimentally investigated. Effect of droplet impact velocity and wettability of the particle surface on collision outcomes were studied ( $0.05 < V_0 < 5.0$  and  $\theta = 70, 90, 118$ ). Compared to the literature, the range of Weber number variations was significantly extended ( $0.1 < We < 1146$ ), and while focus of the previous works was only on impacts in which particle is larger than the droplet ( $D_r < 1$ ), the drop to particle diameter ratio in this work was larger than one. Therefore, formation of a thin liquid film, i.e. lamella, was observed due to impact of a relatively high velocity droplet onto a hydrophobic particle. It was shown that for hydrophobic targets with  $\theta > 110^\circ$ , change in particle wettability does not affect the lamella geometry. Temporal variations of various geometrical parameters of collision outcomes including lamella length and lamella base diameter were investigated during the impact. A comprehensive map of all the available works in drop impact on a spherical target was also provided.

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